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(54) Abstract Title
Flood easement or prevention

(57) Flood easement or prevention means that comprises at least one flexible container adapted to be filled with a liquid medium. The containers may be refillable and provided with a sealable or resealable port for the admission and exhaust of the liquid and the inlet port may include a valve means. The containers may be collapsible in their non-use condition and may be in the form of a bag or bladder. A protective cover may be provided for each container or for a plurality of containers. The liquid medium used may be water. A further aspect of the invention is a method of flood easement including the filling of the containers in the first aspect of the invention and placing a plurality of the containers in the form of a barrier across a threshold of a property for preventing or assisting in the prevention of the ingress of flood water into the property.

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FLOOD EASEMENT OR PREVENTION

This invention concerns a means and a method for easing or preventing
5 the flooding of domestic, commercial and industrial properties by flow
diversion.

With the recent advent of heavy and persistent rainfall within Europe,
particularly the United Kingdom, has come very serious flooding of
10 homes and businesses with concomitant losses on personal and corporate
levels bringing substantial insurance claims for the wholesale damage
incurred.

Clearly one of the principal means of flood prevention is to ensure,
15 insofar as is possible, that rivers and streams are provided with sufficient
barriers to prevent them bursting their banks and to avoid the
consequences in terms of invasive water flow into peoples' homes and
places of work.

20 However, the problem of flooding can arise generally when the land has
become waterlogged and is thus unable to absorb any further rainfall
resulting in a runoff effect that causes intrusive water inflow to dwellings
and commercial premises alike.

25 Conventionally, sandbags have been employed as barriers to flood waters
and are generally deployed on the thresholds of properties in an attempt
to prevent the ingress of water. However, the physical handling of the
sand bags is onerous and tiring, and in any event the bags are only
effective in stemming water flow for a relatively short time span until the
30 sand becomes saturated. The consequence of saturation is that water
flow then commences with seepage, albeit that the sand affords a measure

of filtering thereby reducing, but not eliminating, the inflow of waterborne debris and dirt.

5 In many instances of flooding, there is little time in which to place the sandbags that may be difficult to acquire and indeed to distribute, especially when widespread flooding has occurred.

10 It is an object of the present invention to provide an improved means of flood easement or prevention or of reducing water ingress into properties following general flooding.

15 According to a first aspect of the invention flood easement or prevention means comprises at least one flexible container adapted to be filled with a liquid medium whereby in use a plurality of said containers is adapted to form a barrier for preventing the passage of water across or through the barrier.

20 The container is advantageously refillable and is provided with a sealable or resealable port for the admission and exhaust of a liquid medium. A valve means may be provided for this purpose. The container is in its non-use condition collapsible and thus easy to store.

25 The container may be in the form of a bag or bladder made of a plastics material of sufficient strength for the task to be performed in practice. In the alternative the container may be made of another suitable material capable of containing the liquid medium preferably without leakage. Each container may advantageously be provided with means for linking one to the other in order to promote continuity and stability.

30 A protective cover may be provided for each container or suitable sheeting to place over a plurality of containers, when in use, may

alternatively be provided. The protective cover may be of any suitable material of a hard-wearing character. The material may be of a woven nature affording a filtering function by dint of its interstitial composition.

- 5 The liquid medium is preferably water which in the advent of heavy rain leading to potential or actual flooding is in super abundance.

According to a second aspect of the invention, a method of flood easement or prevention includes the steps of filling containers in
10 accordance with the first aspect of the invention with a liquid medium, and placing a plurality of the containers in the form of a barrier across a threshold or other boundary of a property thereby to prevent or assist in preventing the ingress of flood water into or onto the property.

- 15 Conveniently the containers form a barrier by being placed in close adjacency on top of one another and in juxtaposition relative one to the other to provide a close structure with pressing contact between containers. The barrier may be formed as a wall and may be single skinned or double skinned dependent upon the prevailing circumstances.

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It has been found that with the containers charged with the liquid medium, for example water, they maintain flexibility which enables the containers to assume an appropriate shape to conform to the surrounding contours of each other and of the relevant threshold or boundary of the
25 property, thereby affording an effective seal against the ingress of flood water. The degree to which the containers are in use infused with the liquid medium will dictate the flexibility of the container in use and will be determined by the particular circumstances in which the containers are to be used in practice.

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Once the danger of flooding has subsided and the water level has receded to a level at which ingress into the property is no longer a danger, the barrier may be removed and the contents of the containers discharged in a suitable manner and at an appropriate time. The containers may then be
5 stored away for re-use.

The advantages of the present invention are that the containers can easily be filled *in situ* and can easily be stored for any flooding eventuality, the liquid fill medium. *i.e.* water, being easily available. This is in sharp
10 contrast to the traditional usage of sandbags which are heavy and unwieldy, are not easy to handle and transport, and are difficult to store.

It is to be understood that the containers of the present invention may be manufactured from any suitable material which is water-resistant and
15 possesses the requisite degree of flexibility and strength for the purpose.

Further it will be understood that the containers of the present invention may be of any suitable size.

CLAIMS:

1. Flood easement or prevention means comprises at least one flexible container adapted to be filled with a liquid medium whereby in use a plurality of said containers is adapted to form a barrier for preventing the passage of water across or through the barrier.
2. Means according to Claim 1 in which the container is refillable and is provided with a sealable or resealable port for the admission and exhaust of a liquid medium.
3. Means according to Claim 2 in which valve means is provided in association with the inlet port.
4. Means according to any one of the preceding claims in which the container is in its non-use condition collapsible.
5. Means according to any one of the preceding claims in which the container is in the form of a bag or bladder.
6. Means according to any one of the preceding claims in which the container is made of a water-resistant material.
7. Means according to any one of the preceding claims in which the container is made of a plastics material.
8. Means according to any one of the preceding claims in which a protective cover is provided for each container.
9. Means according to any one of the preceding claims 1 to 7 in which a protective cover is provided for a plurality of containers.

10. Means according to Claim 9 in which the protective cover is in sheet form.
- 5 11. Means according to any one of the preceding claims in which the liquid medium is water.
12. Flood easement or prevention means substantially as hereinbefore described.
- 10 13. A method of flood easement or prevention including the steps of filling containers in accordance with the first aspect of the invention with a liquid medium, and placing a plurality of the containers in the form of a barrier across a threshold or other boundary of a property thereby to prevent or assist in preventing the ingress of flood water
- 15 into or onto the property.
14. A method according to Claim 13 in which the liquid medium is water.
- 20 15. A method according to Claim 13 or 14 in which the containers form a barrier by being placed in close adjacency on top of one another and in juxtaposition relative one to the other to provide a close structure with pressing contact between containers.
- 25 16. A method according to Claims 13, 14 or 15 in which the barrier is formed as a wall and is single skinned or double skinned.
17. A method of flood easement or prevention substantially as hereinbefore described.



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Application No: GB 0027468.8
 Claims searched: 1-17

Examiner: Catherine Allen
 Date of search: 23 April 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): E1J: JGM, JGN

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E02B: 7/00, 7/04, 7/20, 7/50

E04H: 9/14

E06B: 7/00, 7/16, 7/22, 7/23, 7/26, 9/00

Other: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB2283524A DUNLOP see whole document	1
A	GB2260156A HILL see figures 2 & 3	
X	EP0898041 LUTHNER see figure 2	1-3, 5, & 6
X	EP0736663 FISCHER see figure 1	1-3, 5 & 6
X	EP0586356 BARBIER see figure 1	1-3, 5 & 6
X	EP0496519A2 DOOLAEGE see whole document	1-2 & 5-17
X	US6022172 SIYAJ see whole document	1, 2, 4-6, 11
X	US5460462 REGAN see whole document	1-6 & 11
X	US4279540 SUGA et al see whole document	1, 5, 6 & 11
X	US3834167 TABOR see whole document	1, 2, 4-6 & 11

X Document indicating lack of novelty or inventive step
 Y Document indicating lack of inventive step if combined with one or more other documents of same category.

& Member of the same patent family

A Document indicating technological background and/or state of the art.
 P Document published on or after the declared priority date but before the filing date of this invention.

E Patent document published on or after, but with priority date earlier than, the filing date of this application.



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Category	Identity of document and relevant passage	Relevant to claims
X	JP9031939 NIPPON STEEL et al. see figures 3 & 5	1, 2 & 4-6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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&	Member of the same patent family		